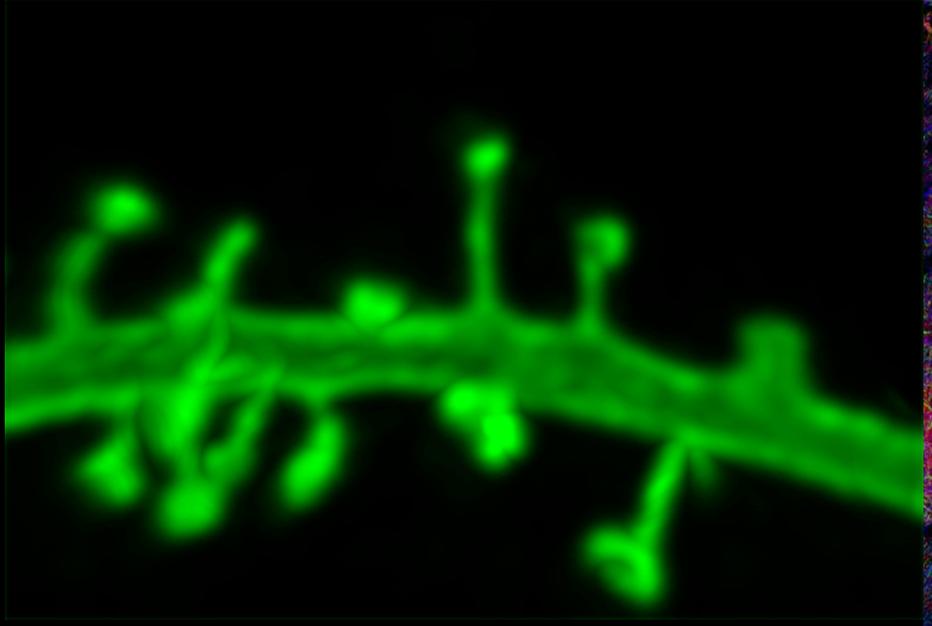
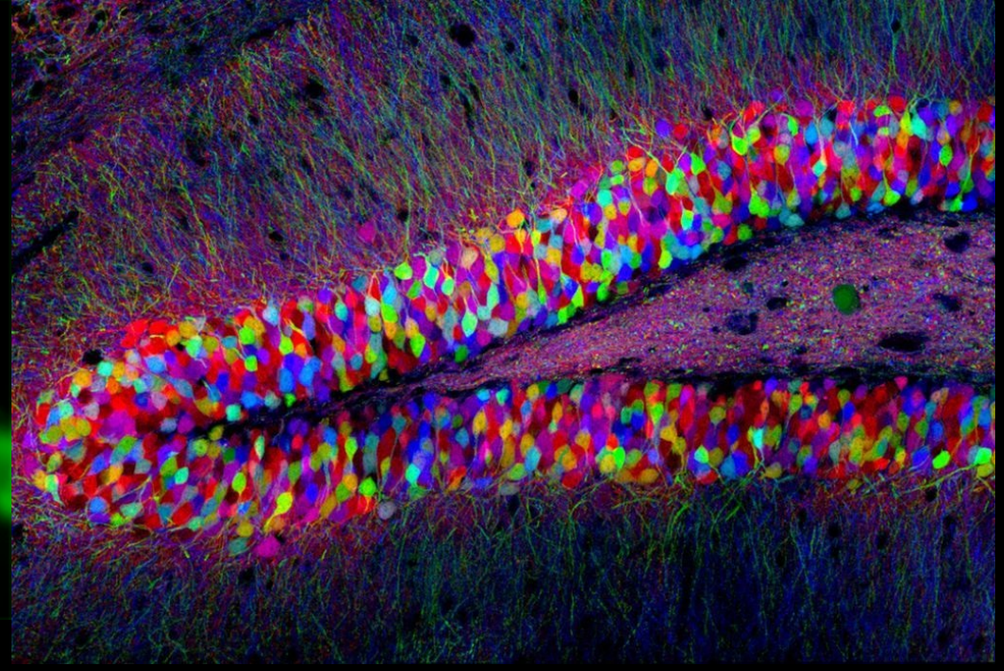
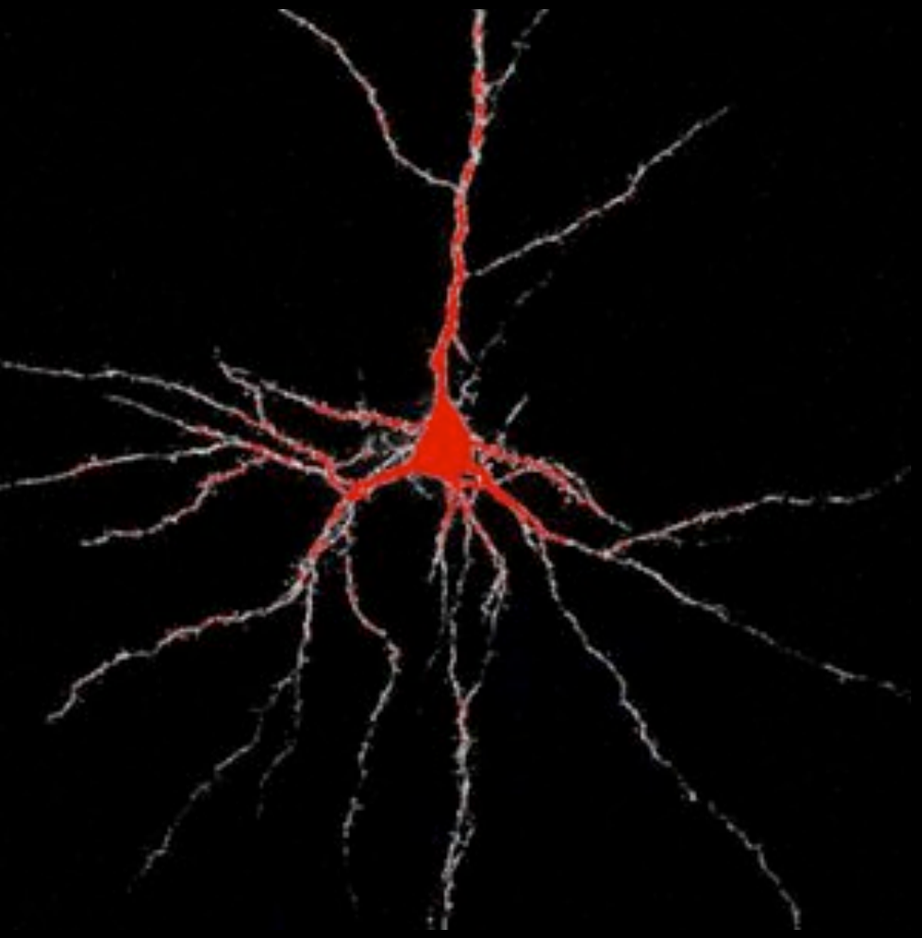
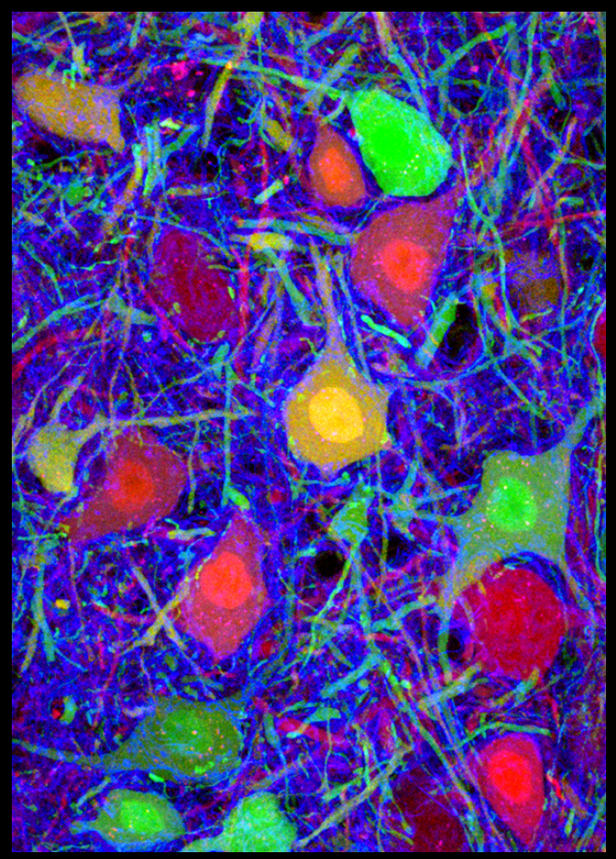


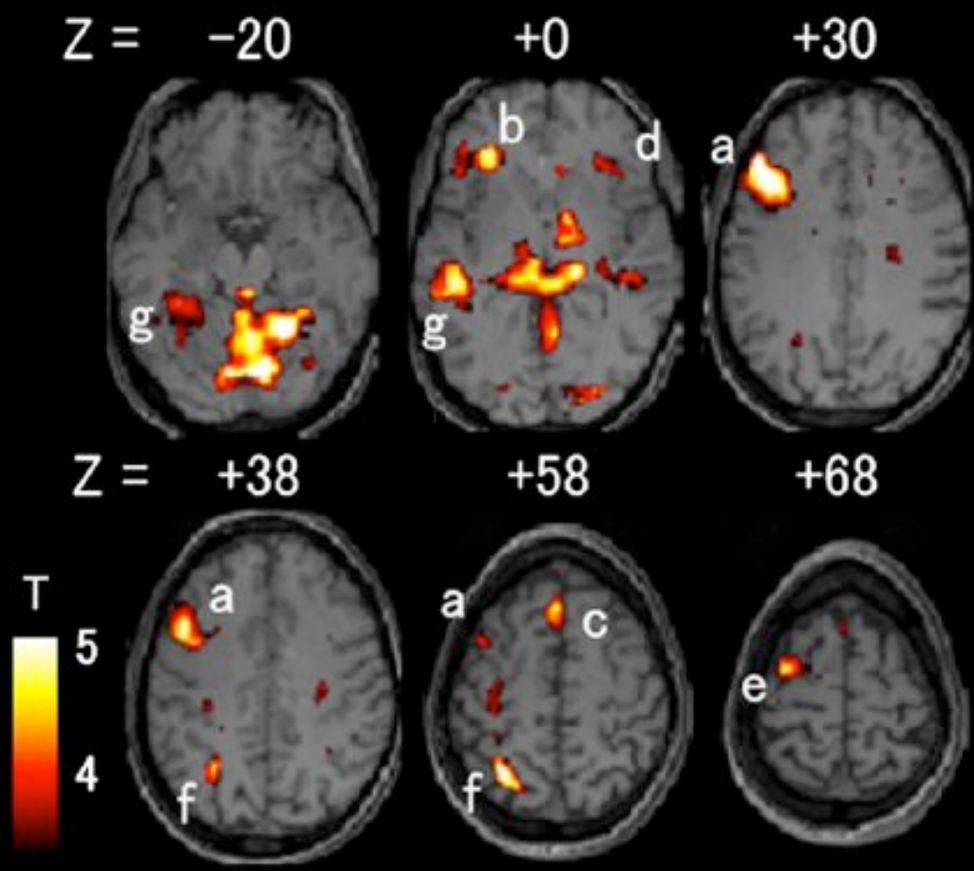




Junior thesis meeting







Please sign in

Why Write a Thesis?

- Harvard is a world-class research university.
  - cutting edge science in 100+ Neurobio-related labs

- best way to experience research
  - take a project from A-to-Z (from planning to peer review)

- calling card for PhD or MD/PhD
  - talking point for interviews
  - see if research is the right career path for you

- forge a faculty mentor relationship
  - top minds in their fields, professional advice, letter of recommendation, etc.

- develop your skills as a scientist
  - emphasis on scholarship – you will become an expert
  - forces you to understand your work – professional-level presentation
  - learn how scientists interpret information and make conclusions

- opportunity for a long-term academic project
  - un-'cram'-able - valuable organizational/planning skills
  - sense of accomplishment

Thesis Timeline

- start in the lab by spring semester (enroll in Neuro 98r!)
- junior thesis proposal due during spring reading period: Tuesday, May 5, 2015
- most thesis writers stay in the lab during the summer
- partial rough draft due during fall reading period: Tuesday, December 8, 2015
- thesis abstract due on study card day of senior spring semester: Friday, January 29, 2016
- thesis due on the Friday before spring break: Friday, March 11, 2016

Thesis Timeline

you are here

2014 → 2015

November

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Find a lab

Neuro 98r registr.

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2016 →

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Thesis due

What should I be doing now?

- find a lab!

lifesciences
undergraduate education

Explore ▾ Concentrations ▾ Courses ▾ Research Resources ▾ People ▾ Teaching ▾

HOME / CONCENTRATIONS / NEUROBIOLOGY /

Neurobio Guides

Neurobiology Resources

Got questions?
Neurobiology FAQs

Join the Synapses mailing Listserv
Updates on relevant events and news

International Neuro Summer Internships - Apply by April 15th

- Bangalore, India Program: National Centre for the Biological Sciences
- Lisbon, Portugal Progam: Centre for the Unknown

Neurobiology Research and Thesis

Looking for a lab? Guide to finding a Harvard Neuro research lab.

Research Funding & Summer Opportunities
LS Research Opportunities Page

Thesis Writing

- Thesis FAQs: Thinking about writing a thesis?
- Sample Neurobio Theses: current-2007
- 2014-5 Thesis Guidelines

Thesis Writing Resources
Harvard Writing Center Senior Thesis Tutors

Neurobiology Careers

Check out our career guide:
What can I do with a degree in Neurobiology?

Need a letter?
How to ask for a recommendation letter

Advice from Seniors

Our former seniors have some of the best advice for other Neurobiology concentrators and have put together a number of helpful guides: Statistics + you (the neurobiology research student) by Judy Fan, '10

How to find the most interesting Harvard classes by Jannis Brea, '10

NEUROBIOLOGY

- Neurobio Contact Us
- Neurobio Requirements
- Neurobio Course Checklists
- Neurobio Courses
- Neurobio Tutorials
- Neurobio Guides
- Neurobio Forms
- Neurobio Theses
- Neurobio Events, Groups, and News





How do I find a Harvard neurobiology research lab?

Step 1: Search for a lab.

The best method is to start your search on the web. Here are some helpful links:

a. **Neurobiology/MCB/CBS labs on the Harvard Campus**:
http://www.mcb.harvard.edu/mcb/faculty/research-area/neurobiology

b. The **Neurobiology website at Harvard Medical School** (HMS) has a general site that lists many faculty who have neurobiology research labs, both in Cambridge and at the various hospitals around Boston. Use their links at left to search by technique or research question:
http://www.hms.harvard.edu/dms/neuroscience/fac/ResearchArea.php

c. Harvard's MBB site lists some neuro labs that are looking for students: http://mbb.harvard.edu/pages/research-and-other-opportunities

d. The Harvard psychology department. Make sure the lab is doing 'cognitive science' ie, using an imaging method (fMRI, MRI, DTI, PET, EEG, etc).
http://www.isites.harvard.edu/icb/icb.do?keyword=k3007&pageid=icb.page18831

e. Search the Harvard Hospital research centers (check with us if you are unsure whether the lab is "neuro enough"):

   a. **Brigham and Women's:**
   http://www.brighamandwomens.org/research/depts/default.aspx

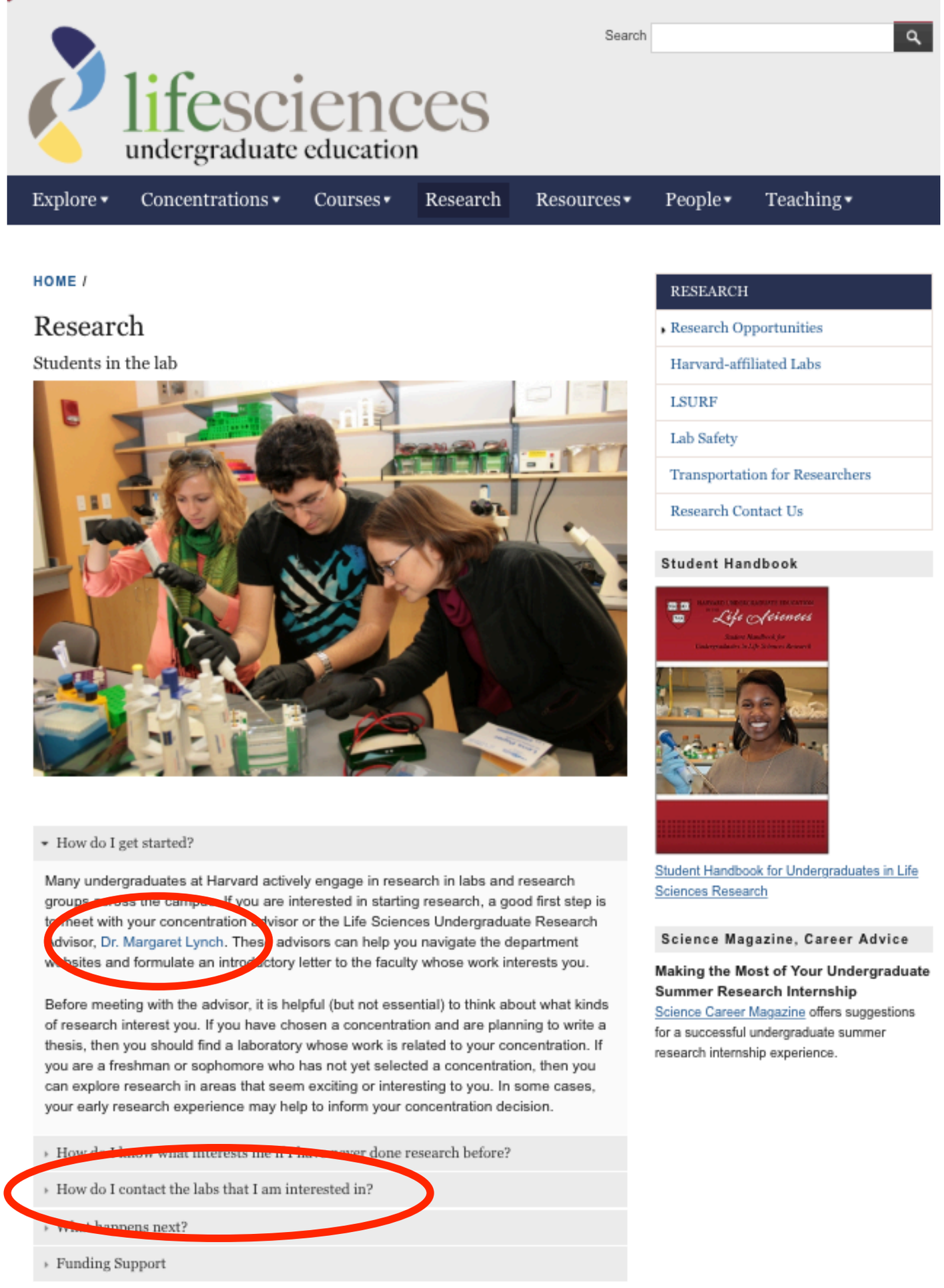
   b. **Beth Israel:** http://www.bidmc.org/Research/Departments.aspx

   c. **Dana Farber Cancer Center**:
   http://researchers.dana-farber.org/search.asp

   d. **MGH:**

What should I be doing now?

- find a lab!

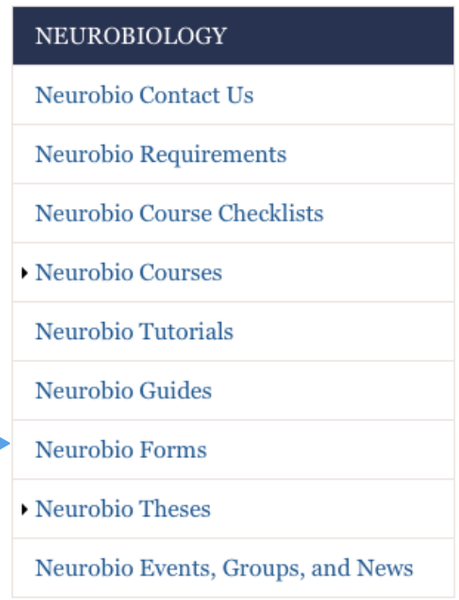


What should I be doing now?

- find a lab!
  - work towards potential thesis project

- spring semester – enroll in Neurobio 98r
  - recommended but not required
  - commit to ~15 hours/week in the lab
  - replace 4th class
  - get academic credit for your research
  - PI assigns grade





- end of spring semester: junior thesis proposal

Thesis Timeline

you are here

2014 → 2015

November

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find a lab

Neuro 98r registr.

May

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Jr thesis proposal
(same as 98r paper)

2016

November

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thesis due

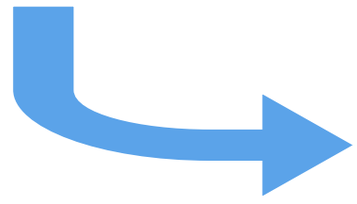
Junior thesis proposal

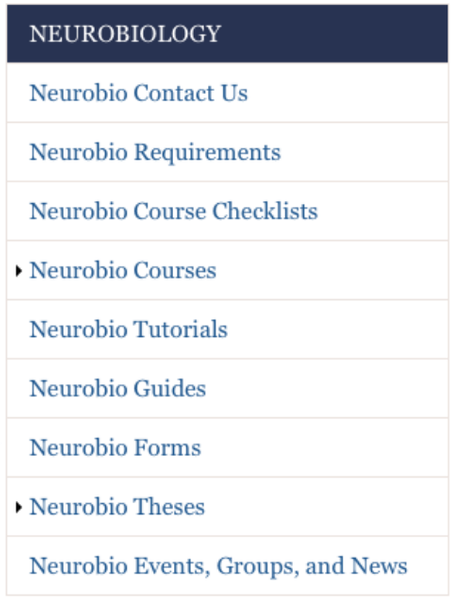
- due at the end of reading period: Tuesday, May 5th
- 2 options:
  1. not enrolled in 98r: Junior Thesis Proposal
     - 2-4 pages (double spaced)
  2. enrolled in 98r: Combined 98r/Proposal
     - 4-7 pages (double spaced)

- background & rationale, experimental approach, references
- subject to change

- allows us to approve the scope of your project and give you feedback over the summer

- your PI approves & signs this form
- download form from our website





Junior thesis proposal, continued

- If your research extends beyond a typical "neurobiology" project, you should discuss it with me before submitting the proposal.
- examples: human behavior labs, clinical work, immunology, etc.

Proposal specifics

- Objective: In one short paragraph, describe the overall goals and main objectives of your research.

- Background (1-2; 3-5 pages): provide the rationale and background for the project
  - read the relevant literature to provide a context for the question(s) you plan to address
  - end with a statement of your specific research question(s)

- Experimental Approach (~1-2 pages): describe the experiments you plan to complete and the specific methods you will use
  - include enough detail so that the reader will have a clear idea about what you plan to do in the lab.
  - will be used to ensure that your project is appropriate for a thesis in Neurobiology
  - do not just describe the overall research plan of the lab; be specific about the experiments you personally plan to do

Thesis Timeline

you are here

2014 → 2015

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find a lab

Neuro 98r registr.

Collect Data

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Jr thesis proposal
(same as 98r paper)

2016

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thesis due

Summer in the lab - funding

- Herchel Smith
- PRISE
- Harvard College [illegible] Program

February 11th!!!

- Dean's Summer Research Awards
  - http://uraf.harvard.edu/undergraduate-research
- Mind, Brain, and Behavior Award (Mary Gordon Roberts Fellowship)
- http://mbb.harvard.edu/pages/summer-thesis-awards

Summer in the lab - housing

- DeWolfe Housing applications accepted starting around March (fill up fast, see HCURA for roommate match)
- Vanderbilt Hall at HMS (6/18 to 8/4)
- “HMS Trading Post”
- Harvard Real Estate Office on Holyoke St.
- Lesley University
- Harvard Business School sublets
- MIT fraternities (?)
- Craigslist
- Talk to your building manager

Thesis Timeline

you are here

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Find a lab

Neuro 98r registr.

Collect Data

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June

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July

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August

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September

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October

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Jr thesis proposal
(same as 98r paper)

Neuro 98r registr.

2016

November

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December

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January

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February

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March

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Thesis due

Neurobio 98r again senior fall

- highly recommended, but not required
- independent work in the lab (~15 hours/week) arranged with your PI
- again, taken as a 4th class if possible
- cannot apply for fall HCRP funding if simultaneously getting 98r course credit
- 6-10 page paper due at the end of the semester (~December 8, 2015) – "Thesis Partial Rough Draft"

Thesis Timeline

you are here

2014 → 2015

November

Su	Mo	Tu	We	Th	Fr	Sa
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December

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January

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February

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March

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April

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find a lab

Neuro 98r registr.

Collect Data

May

Su	Mo	Tu	We	Th	Fr	Sa
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Jr thesis proposal
(same as 98r paper)

June

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July

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August

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September

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Neuro 98r registr.

October

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collect data and write

2015 → 2016

November

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29	30					

December

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partial draft due
(same as 98r paper)

January

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February

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March

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thesis due

Thesis partial rough draft

- required for all thesis writers
- due December 8th, 2015

a rough draft of the thesis introduction

-- OR --

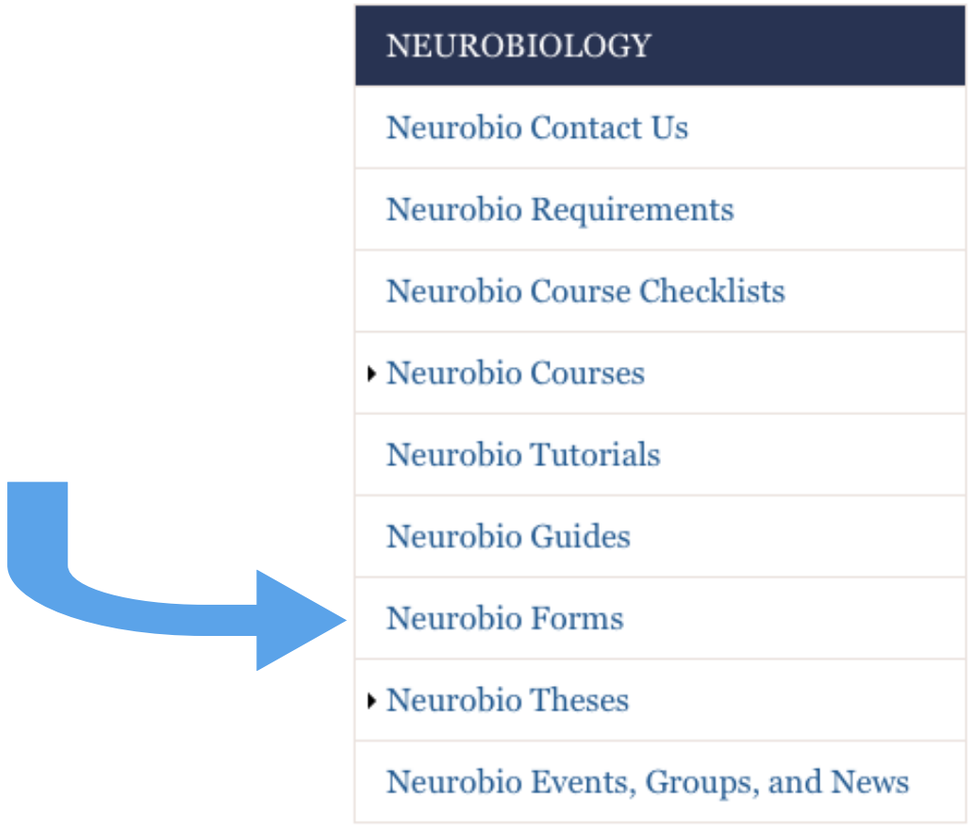
a rough draft of the results section

-- AND --

a list of completed & pending experiments

Neuro 98r and thesis rough draft

- to register for 98r and/or view instructions for the thesis rough draft, visit our friendly website…



Thesis Timeline

you are here

2014 → 2015

November

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December

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February

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April

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find a lab

Neuro 98r registr.

Collect Data

May

Su	Mo	Tu	We	Th	Fr	Sa
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Jr thesis proposal
(same as 98r paper)

June

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August

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Neuro 98r registr.

October

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collect data and write

2016

Write Up &
Finish Up

November

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December

Su	Mo	Tu	We	Th	Fr	Sa
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partial draft due
(same as 98r paper)

January

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abstract due

February

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Neuro 99r registr.

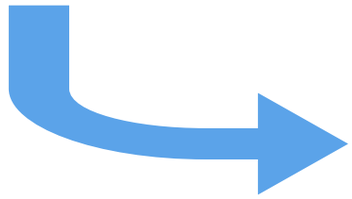
March

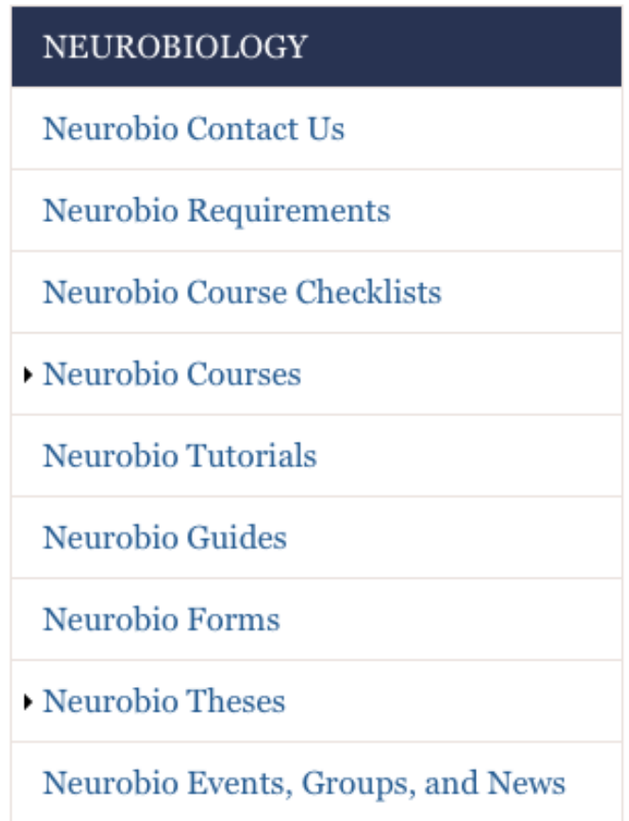
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thesis due

Senior abstract (~250 words)

- due on study card day of spring semester (January 29, 2015)
- does not need to be in its final form; mainly used to help us determine the readers for your thesis
- abstract form also doubles as your registration for Neuro 99 (optional registration – highly recommended)





Thesis Timeline

you are here

2014 → 2015

November

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Find a lab

Neuro 98r registr.

Collect Data

May

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Jr thesis proposal
(same as 98r paper)

Neuro 98r registr.

Collect Data and Write

2016

Write Up &
Finish Up

4 weeks 2 weeks

November

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Partial draft due
(same as 98r paper)

full rough draft due

thesis due

Thesis due dates

- rough draft of entire document due to your PI on Friday February 26, 2015
- completed thesis due the Friday before spring break – March 11, 2015
- 30-50 pages double-spaced
- extended journal article format
  - introduction, methods, results, figures, discussion, references
- time commitment might range from all-encompassing to equivalent of three classes
- previous theses located on shelves in BioLabs 1082
  - recent years, email James Poolner (jp@mcb.harvard.edu)
  - abstracts available online

Thesis grading

You will receive two separate grades on your thesis:

1. Neurobiology 99 grade on transcript

   - letter grade assigned by PI
   - similar to Neuro 98r grading

2. Latin grade determined by Neurobiology Standing Committee

   - based on anonymous faculty review
   - influences honors recommendation in field
   - grade not printed on transcript

Thesis grading

Latin grade determined by Neurobiology Standing Committee:

Summa
High Magna
Magna
High Cum Laude
Cum Laude

Commendable
No credit

- NOT the same as Latin honors from the college
- do affect English honors in your concentration, which in turn affects your Latin college honors

Thesis grading

- Do I need publishable results in order to do well on my thesis?

  NO!

- results from undergraduate theses are not expected to be perfect

- grade is weighted heavily on how well the thesis is written & presented

- negative results can be discussed heavily in the discussion

- make it clear that you understand how the experiments might be redone, future directions to improve, etc.

Thesis grading

Q. How independent should I be in the lab?

A. Varies widely, depends upon lab & student

Logistical resources available

Transportation

T-passes are available to go to MGH or Broad - contact James Poolner

* NOT available for labs on the M2 route

But wait – how the [bleep] do I write a thesis?

- learn by doing!

- 3 workshops for thesis writers in the fall/spring:
  - writing the introduction
  - making figures
  - storyboarding your results

- samples to view & people to turn to:
  - your PI & lab members
  - Laura and Ryan
  - fellow thesis writers (exchange your work)
  - the writing center (thesis writing tutors)

Then we celebrate!

The Sixth Annual Thesis Awards in Neurobiology (SATAN)

A night of good food, great science, scientific jokes, & fun

Each thesis writer will briefly present their thesis
in *one minute or less*, using any medium.

Late April - stay tuned!



Ryan Draft
Advisor



Laura Magnotti
Advisor



Venki Murthy
Head Tutor



James Poolner
Program Coordinator

Want to talk more about writing a thesis?

Come visit!